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CLAIM AMENDMENTS

1. (Currently amended) An apparatus, comprising:

one or more sensors that produce one or more signals based on one or more joint motions of an individual; and

one or more processing components that employ one or more of the one or more signals to make a determination of a positional change of the individual;

wherein the one or more joint motions are measured and reconstructed to determine a path traversed by the individual; and

wherein the path is used to create a map of an area.

2. (Original) The apparatus of claim 1, wherein the one or more sensors comprise one or more strain sensors.

3. (Original) The apparatus of claim 2, wherein the one or more strain sensors comprise a strain sensor adjacent to a joint of the individual, wherein the strain sensor experiences a strain in response to a joint motion of the joint of the one or more joint motions;

wherein the strain sensor represents the strain as strain information in a signal of the one or more signals;

wherein one or more of the one or more processing components translates the strain information into the positional change of the individual.

4. (Original) The apparatus of claim 2, wherein a strain sensor of the one or more strain sensors detects a bending of a joint of the individual, wherein the strain

sensor represents the bending as strain information in a signal of the one or more signals;

wherein one or more of the one or more processing components employ the strain information to make a determination of a displacement of the positional change of the individual.

5. (Original) The apparatus of claim 2, wherein a strain sensor of the one or more strain sensors detects a twisting of a joint of the individual, wherein the strain sensor represents the twisting as strain information in a signal of the one or more signals;

wherein one or more of the one or more processing components employs the strain information to make a determination of a direction of the positional change of the individual.

6. (Original) The apparatus of claim 2, wherein a first strain sensor of the one or more strain sensors detects a bending of a first joint of the individual, wherein the first strain sensor represents the bending as first strain information in a first signal of the one or more signals;

wherein one or more of the one or more processing components employ the first strain information to make a determination of a displacement of the positional change of the individual;

wherein a second strain sensor of the one or more strain sensors detects a twisting of a second joint of the individual, wherein the second strain sensor represents the twisting as second strain information in a second signal of the one or more signals;

wherein one or more of the one or more processing components employ the second strain information to make a determination of a direction of the positional change of the individual;

wherein one or more of the one or more processing components employ the displacement of the positional change, the direction of the positional change, and a known starting location of the individual to make a determination of an updated position of the individual.

7. (Original) The apparatus of claim 1, further comprising a filter component that weighs and combines:

the positional change determined by the one or more processing components based on the one or more joint motions of the individual; and

position information from one or more supplementary navigation components.

8. (Original) The apparatus of claim 7, wherein the supplementary navigation components comprise one or more of a global positioning system ("GPS") and an inertial navigation system ("INS");

wherein the filter component weighs and combines position information from the one or more processing components and the supplementary navigation components based on a relative reliability of the one or more processing components and the supplementary navigation components.

9. (Original) The apparatus of claim 1, wherein one or more of the one or more processing components receive position correction information of the individual from one or more supplementary navigation components.

10. (Original) The apparatus of claim 1, wherein one or more of the one or more processing components provide initial position information of the individual to one or more supplementary navigation components upon initialization of the one or more supplementary navigation components.

11. (Original) The apparatus of claim 1, wherein the one or more sensors are integrated into a suit wearable by the individual, wherein the one or more sensors are located in the suit at positions that are adjacent to one or more joints of the individual.

12. (Original) The apparatus of claim 1, further comprising a magnetic heading sensor that provides direction information to one or more of the one or more processing components, wherein the direction information of the magnetic heading sensor supplements the positional change determined by the one or more processing components;

wherein the magnetic heading sensor employs the Earth's magnetic field to make a determination of a direction of the positional change of the individual.

13. (Original) The apparatus of claim 1, further comprising a barometric altitude sensor that provides altitude information to one or more of the one or more processing components, wherein the altitude information of the barometric altitude sensor supplements the positional change determined by the one or more processing components;

wherein the barometric altitude sensor measures an atmospheric pressure to make a determination of an altitude change of the positional change of the individual.

14. (Original) The apparatus of claim 1, wherein the one or more sensors and the one or more processing components are calibrated to the individual by having the individual traverse a known path to monitor how the one or more joint motions of the individual respond to the known path.

15. (Original) The apparatus of claim 1, wherein the one or more processing components calculate an updated position of the individual based on a known starting position and the positional change of the individual;

wherein the one or more processing components send the updated position of the individual to one or more of a display component and a recording component.

16. (Original) The apparatus of claim 1, wherein the one or more sensors comprise one or more rate sensors.

17. (Original) The apparatus of claim 1, further comprising one or more supplementary navigation components, wherein one or more of the one or more supplementary navigation components are integrated into a shoe worn by the individual;

wherein the one or more of the one or more supplementary navigation components initiate one or more zero velocity updates at a time when the shoe worn by the individual is substantially stationary.

18. (Currently amended) A method, comprising the steps of:

measuring one or more movements of one or more joints of an individual;

translating the one or more movements into a positional change of the individual;

and

reconstructing the one or more movements to determine a path traversed by the individual, wherein the path is used to create a map of an area.

19. (Original) The method of claim 18, wherein the step of measuring the one or more movements of the one or more joints of the individual comprises the step of:

measuring a strain on a strain sensor induced on the strain sensor by movement of the joint adjacent to the strain sensor.

20. (Original) The method of claim 19, wherein the step of translating the one or more movements into the positional change of the individual comprises the step of:

analyzing characteristics of the strain induced on the strain sensor to determine a displacement and a direction of the positional change of the individual.

21. (Original) The method of claim 18, further comprising the step of:

adding the positional change of the individual to a known starting location of the individual to determine an updated position of the individual.

22. (Currently amended) An article, comprising:

one or more computer-readable signal-bearing media;

means in the one or more media for measuring one or more movements of one or more joints of an individual;

means in the one or more media for translating the one or more movements into a positional change of the individual; and

means in the one or more media for reconstructing the one or more movements to determine a path traversed by the individual, wherein the path is used to create a map of an area.